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AZ CORP COMMISSION
DOCKET CONTROL

2017 MAR 31 P 1:10

TEP
Tucson Electric Power
88 East Broadway Blvd., P.O. Box 711
Tucson, Arizona 85702

Arizona Corporation Commission
DOCKETED

MAR 31 2017

DOCKETED BY
GB

March 31, 2017

Docket Control
Arizona Corporation Commission
1200 West Washington Street
Phoenix, AZ 85007

Re: Notice of Filing – Tucson Electric Power Company's 2017 REST Compliance Report for the year ended 2016, Docket No. E-00000R-16-0084

Pursuant to Arizona Administrative Code R14-2-1812, each Affected Utility shall file with Docket Control a report that describes its compliance with the requirements of the Renewable Energy Standard and Tariff ("REST") Rules. Tucson Electric Power herby files its 2016 REST Compliance Report for year-end 2016.

Because the Report contains confidential information, such information has been redacted from this filing. The un-redacted Report is being provided directly to Staff pursuant to the terms of the Protective Agreement executed in Docket No. E-00000R-16-0084.

If you have any questions, please do not hesitate to contact me at (520) 884-3680.

Sincerely,

Melissa Morales
Regulatory Services

cc: Compliance Section

Tucson Electric Power

Response to R14-2-1812 Utility Reporting Requirements
of the
Arizona Corporation Commission

COMPLIANCE REPORT AND RENEWABLE ENERGY DATA FOR 2016

Tucson Electric Power Co. | PO Box 711, Tucson, AZ 85702

Table of Contents

Compliance with 2016 Renewable Energy Standard ("RES") Requirements

For calendar year 2016, the Arizona Corporation Commission ("ACC" or "Commission") established an annual RES requirement of 6.0 percent[1] of the utility's 2016 retail kilowatt-hour ("kWh") sales, with 30 percent[2] of the total requirement to be fulfilled with energy produced from Distributed Renewable Energy ("DRE") Resources. This separate DRE carve-out provision requires that one-half[3] of the total DRE requirement come from residential resources and one-half from non-residential resources. For the purposes of RES compliance tracking, A.A.C. R14-2-1801(N) defines a Renewable Energy Credit ("REC") as the unit created to track kWh derived from a DRE or kWh equivalent of conventional energy resources displaced by a DRE; however, throughout this Compliance Report, Tucson Electric Power Co. ("TEP" or "Company") discloses its production in both kWh and RECs.

In 2016, the Company's total Eligible Renewable Energy Resources, including Annualized Production and In-Progress projects, was 952,610,673 kWh, which is equivalent to 10.7 percent of TEP's total 2016 retail sales. Additionally, TEP reports the non-eligible renewable energy resources on its system which, when combined with the total eligible renewable energy resources for illustrative purposes only, equals 1,101,295,129 kWh and 12.4 percent of 2016 retail sales. Total DRE resources for the year was 204,630,442 kWh. Total Residential actual production was 82.7% of the 2016 residential requirement, and Non-Residential actual production was 172.9% of the 2016 non-residential requirement. TEP will retire 533,782,620 RECs for 2016 (Actual production of Residential DRE of 66,180,010; Non-Residential DRE of 138,450,432; and Non-DRE of 329,152,178).

The Company requested a waiver for 2016 & 2017 to the residential DRE requirement in its 2016 RES Implementation Plan which was approved in Decision 75560. As shown in Table 1b, the annual residential DRE compliance measure required the retirement of 80,067,393 RECs; however, the Company only has the rights to retire 66,180,010 residential DRE RECs. However, consistent with Commission Decision No. 74882 and the associated changes to the Arizona RES to acknowledge all renewable resources within the Company's service territory, the Company will use the waiver based on the production values shown in Table 1a for the total non-incentivized DRE production which aren't included in the RECs available for retirement.

[1] A.A.C. R14-2-1804(B)
[2] A.A.C. R14-2-1805(B)
A.A.C. R14-2-1805(D)

Company's Eligible Renewable Energy Resources

Table 1a shows the following information:

1. Actual energy production[4]
2. Annualized energy production[5]
3. Generation capacity, disaggregated by technology type[6]

Compliance Report - Energy **Tucson Electric Power Company**

Table 1a-Renewable Resources

Resource	Install Year	Technology	Ownership	MW(AC)	MW(DC)	Production (Actual) kWh	Production Actual or Annualized[2] kWh	Multiplier Credits[3]	Total kWh or Equivalent	
GENERATION										
UTILITY OWNED:										
Springerville 1	2001-2004	Fixed Tilt	TEP	3.68	4.60	405,876	405,876	1.5	608,814	
Springerville 2	2010	Fixed Tilt	TEP	1.45	1.81	159,924	159,924	1.0	159,924	
White Mountain	2014	Fixed Tilt/LCPV	TEP	8.25	10.00	15,437,000	15,437,000	1.0	15,437,000	
U of A Tech Park 1	2010	Single Axis	TEP	1.28	1.60	1,428,493	1,428,493	1.0	1,428,493	
U of A Tech Park 2	2011	Fixed Tilt	TEP	4.00	5.00	9,009,003	9,009,003	1.0	9,009,003	
Headquarters	2012	Fixed Tilt	TEP	0.04	0.05	5,294	5,294	1.0	5,294	
Warehouse OH	2012	Fixed Tilt	TEP	0.40	0.50	761,929	761,929	1.0	761,929	
Prairie Fire	2012	Fixed Tilt	TEP	4.00	5.00	8,939,249	8,939,249	1.0	8,939,249	
Demoss-Petrie	2001	Fixed Tilt	TEP	0.18	0.22	112,335	112,335	1.0	112,335	
Sundt Augmentation	2014	Solar Steam Augmentation	TEP	5.00		6,771,971	6,771,971	1.0	6,771,971	
Total Utility Owned				28.28	28.78	43,031,074	43,031,074		43,234,012	
Purchase Power Agreements:										
Amonix	2011	Dual Axis	PPA	1.20	2.00	859,840	859,840	1.0	859,840	
Gatos Montes	2012	Fixed Tilt	PPA	4.92	6.00	9,972,990	9,972,990	1.0	9,972,990	
Avra Valley	2012	Single Axis	PPA	25.00	34.41	75,014,364	75,014,364	1.0	75,014,364	
Picture Rock	2012	Single Axis	PPA	20.00	25.00	55,748,474	55,748,474	1.0	55,748,474	
E.ON UASTP	2013	Single Axis	PPA	4.80	6.60	13,054,473	13,054,473	1.0	13,054,473	
E.ON Valencia	2013	Single Axis	PPA	10.00	13.20	23,551,667	23,551,667	1.0	23,551,667	
Avalon	2014	Single Axis	PPA	28.34	35.00	79,763,681	79,763,681	1.0	79,763,681	
Avalon PH II	2016	Single Axis	PPA	17.22	21.53	38,586,843	38,586,843	1.0	38,586,843	
Congenera	2014	CPV Single Axis	PPA	1.10	1.38	2,166,400	2,166,400	1.0	2,166,400	
Red Horse Solar	2015	Single Axis	PPA	41.00	51.25	153,233,921	153,233,921	1.0	153,233,921	
Red Horse Wind	2015	Wind	PPA	30.00		64,996,285	64,996,285	1.0	64,996,285	
Macho Springs	2011	Wind	PPA	50.40		133,811,000	133,811,000	1.0	133,811,000	
Los Reales Landfill	1998	Biomass	PPA	4.00		28,495,982	28,495,982	1.5	42,743,973	
Manufacturing Credit		PV	Global Solar				0	1.0	0	
Red Horse Expansion	2016	Test Power	PPA			13,789,298	13,789,298	1.0	13,789,298	
Agreements				237.98	196.37	693,045,218	693,045,218		707,293,209	
Gross Total				266.26	225.15	736,076,292	736,076,292		750,527,221	
Adjustment of 10% wholesale DG applied to Non-Residential Requirement						(16,013,479)	(16,013,479)		(16,013,479)	
Total Production of AC & DC Facilities						720,062,814	720,062,814		734,513,743	A
Subtotal Capacity of AC Facilities				84.40						
Subtotal Capacity of DC Facilities Including AC Equivalent				181.86	225.15					
Total AC Generation Capacity (excl. Credits)				266.26						

[4] As required by A.A.C. R-14-2-1812(B)(1)

[5] As required by A.A.C. R-14-2-1812(B)(2)

[6] As required by A.A.C. R-14-2-1812(B)(3)

Table 1a continued.

DISTRIBUTED ENERGY (DRE)	Install Year	Technology	Ownership	MW(AC)	MW(DC)	Production (Actual) kWh	Production Actual or Annualized[2] kWh	Multiplier Credits[3]	Total kWh or Equivalent	
RESIDENTIAL:										
Incentive										
Installed										
Purchase		PV	Owned		17.57					
Lease		PV	Leased		14.46					
Total-PV Incentive					32.03	57,870,829	57,870,829	1.0	57,870,829	
Thermal		Thermal	Owned			6,740,250	6,740,250	1.0	6,740,250	
Total-Thermal						6,740,250	6,740,250		6,740,250	
Utility Owned:										
Installed					2.11	1,568,931	4,009,000	1.0	4,009,000	
In Progress					0.54			1.0	1,026,000	
Total-PV Utility Owned		PV	Owned		2.65	1,568,931	4,009,000		5,035,000	
Subtotal of Installed Residential Incentive & Utility Owned Production						66,180,010	68,620,079		69,646,079	B
Subtotal Capacity of DC Facilities Including AC Equivalent				29.86	37.33					
Total AC Generation Capacity (excl. Credits)				29.86						

RESIDENTIAL:										
Non-Incentive										
Installed										
Purchase		PV	Customer Owned		15.16					
Lease		PV	Leased		47.12					
Total-PV Installed					62.28	78,621,896	78,621,896		78,621,896	
In Progress										
Purchase		PV	Customer Owned		2.31					
Lease		PV	Leased		4.25					
Total-PV In-Progress					6.56		11,808,000		11,808,000	
Subtotal Non-Incentive Installed & In Progress						78,621,896	90,429,896		90,429,896	H
Subtotal Capacity of DC Facilities Including AC Equivalent				55.07	68.84					

DISTRIBUTED ENERGY (DRE)	Install Year	Technology	Ownership	MW(AC)	MW(DC)	Production (Actual) kWh	Production Actual or Annualized[2] kWh	Multiplier Credits[3]	Total kWh or Equivalent
Non-RESIDENTIAL:									
Up-Front Incentive									
Installed									
Purchase		PV	Owned		4.30				
Lease		PV	Leased		1.39				
Total-PV UFI				4.55	5.69	8,286,240	8,286,240	1.0	8,286,240
Thermal		Thermal	Owned			4,670,985	4,670,985	1.0	4,670,985
Wind		Wind	Owned	0.01		6,654	6,654	1.0	6,654
Daylighting		Daylighting	Owned			188,539	188,539	1.0	188,539
Total-Up-Front Incentive				4.56	5.69	13,152,418	13,152,418		13,152,418
Performance Based Incentives:									
PV		PV	Owned		41.33	75,882,080	75,882,080	1.0	75,882,080
Chilling		Chilling	Owned			1,940,377	1,940,377	1.0	1,940,377
Total-PBI				33.06	41.33	77,822,457	77,822,457		77,822,457
Utility Owned:									
Fort Huachuca	2014	Fixed Axis	Utility Owned	13.60	17.20	31,256,894	31,256,894	1.0	31,256,894
In Progress: Fort Huachuca II	2017	Fixed Axis	Utility Owned	4.40	5.00		10,000,000	1.0	10,000,000
Subtotal of Installed Residential Incentive & Utility Owned Production						122,231,769	122,231,769		132,231,769
Subtotal Capacity of DC Facilities Including AC Equivalent				55.63	69.22				
Total AC Generation Capacity				55.63					

Credits										
Wholesale (10% of DG Req)						16,013,479			16,013,479	
Subtotal After Wholesale Credit						138,245,248	122,231,769		148,245,248	
Residential Credits										
In-State Manufacturing and Installation Content						38,992			38,992	
In-State Plant Installation Credit						83,096			83,096	
Distributed Generation Credit						83,096			83,096	
Subtotal After Residential Credits						138,450,432			148,450,432	C

Continuation of Non-Residential, summations and notes on following page.

Table 1a continued.

Non-Incentive / Non-Residential:

DISTRIBUTED ENERGY (DRE)	Install Year	Technology	Ownership	MW(AC)	MW(DC)	Production (Actual) kWh	Production Actual or Annualized[2] kWh	Multiplier Credits[3]	Total kWh or Equivalent	
Non-Incentive										
Installed										
Purchase		PV	Owned		46.03					
Lease		PV	Leased		2.78					
Total-PV Installed					48.81	50,208,980	50,208,980		50,208,980	
In-Progress										
Purchase		PV	Owned		2.76					
Lease		PV	Leased		1.71					
Total-PV In-Progress					4.47		8,046,000		8,046,000	
Subtotal DE - Non-Residential Installed & In-Progress						50,208,980	58,254,980		58,254,980	I
Subtotal Capacity of DC Facilities Including AC Equivalent				42.62	53.28					

Summary & Notes:

	MW(AC)	MW(DC)	Production (Actual) kWh	Production Actual or Annualized[2] kWh	Total kWh or Equivalent	
Subtotal Distributed Energy - Incentive (B + C)	85.49	106.55	204,630,442	190,851,848	218,096,511	D
Subtotal Distributed Energy - Non-Incentive Installed & In-Progress (H + I)	97.70	122.12			148,684,876	E
Total RES Resources Available for Compliance (A + D)	85.49	106.55	924,693,255	910,914,662	952,610,253	F
Total 2016 RES Resources Available for Retirement[4]					924,693,255	G
Total AC Capacity & AC Equivalent[2]	351.75					

Notes to Table 1a:

[1] Assumes the following kWh per installed kW:

Residential and Non-Residential: 1800 kWh/kW (based on average systems installed)
Residential Utility Owned : 1900 kwh/kW (newer technology installed)
Utility Generation, Fixed Tilt: 2000 kWh/kW
Utility Generation, Single-Axis Tracker: 2200 kWh/kW
Utility Generation, Dual-Axis Tracker: 2400 kWh/kW
Utility Generation, Wind: 2200 kWh/kW

[2] The Mwac equivalent is the summation of the Utility Owned MW(AC) value plus the DG DC capacity converted from DC to AC using an 80% DC-AC conversion factor.

[3] Manufacturing Credit Multiplier 2,190.0

In-State Power Plant Extra Credit (1997-2005) 0.5
In-State Manufacturing and Installation Content (1997-2005) 0.5 X (% in-state content in installed plant)
DRE Solar Electric Generator and Solar Incentive Program (1997- 0.5

[4] Does not include Annualized Production or In-Progress

[5] The Residential Non-Incentive projects had actual production of 78,621,896 kWh during 2016

[6] The Non-Residential Non-Incentive projects had actual production of 50,208,980 kWh during 2016

[7] HQ solar rooftop system had a broken inverter and additionally needed to be removed due to roof concerns. There was zero production from January-November 2016. It has been repaired and production resumed as of December 2016.

Renewable Energy Credit Retirement Summary

Table 1b shows the breakdown of RECs used to satisfy both the annual renewable energy requirement and the DRE requirement[7].

			Measure (kWh)		for Retirement		Carry Forward
Retail Sales	Actual kWh Sales for 2016		**8,896,377,000**				
2015 Carry Forward Balance							
Non-DRE Balance					600,607,591		600,607,591
Total RES Requirement	% of Retail Sales	6%	**533,782,620**	a			
DRE Requirement	% of RES Requirement	30%	**160,134,786**				
Residential DRE	% of DRE Requirement	50%	**80,067,393**		66,180,010	b	
Non-Residential DRE	% of DRE Requirement	50%	**80,067,393**		138,450,432	c	
Non-DRE	Non-DRE Requirement						
	Total RES Requirement (a)		**329,152,178**		720,062,814		390,910,635
	- Residential RECs (b)						
	- Non-Residential RECs (c)						
Total Resources Available for the 2016 REC Retirement					**1,525,300,846**		
Total Retirement					**533,782,620**		
Residential DRE					66,180,010		
Non-Residential DRE					138,450,432		
Non-DRE					329,152,178		
Total 2016 Carry Forward Balance							991,518,226

[7] As required by A.A.C. R14-2-1812(B)(5)

Renewable Energy Standard Resource Costs

This section is Competitively Confidential.

Table 2a **REDACTED**

Renewable Energy Standard Incentive Costs

Table 2b shows cost information regarding $/MWh of energy obtained from eligible renewable energy resources and $/MW of generation capacity, by technology, that can be attributed to the RES[8] for 3rd-party projects receiving incentives.

Table 2b - RES Cash Incentive Costs **Tucson Electric Power Company**

2016 Distributed Energy Cash Incentive Program Costs

	MW	MWh	Production Based Incentives ($/MW)	($MWh)	2016
Non-Residential:					
PBI					
PV					
PBI Legacy					
PV		75,846		$ 97.27	$ 7,377,292
Solar Chilling		1,940		72.30	140,260
Subtotal: Non-Residential		77,786			$ 7,517,552

Notes to Table:

[1] Based on expected annual system production.

[8] As required by A.A.C. R14-2-1812(B)(4)

ACC Approved Budget

Tucson Electric Power
ACC Budget
January through December 2016

	Jan - Dec 16
Revenue	
Tariff Billing	$ 47,836,528
Carryforward from Previous Year	8,809,321
Total Revenue	56,645,849
Expenses	
Purchased Renewable Energy	
AMCCCG	38,002,919
TEP Owned	
Depreciation	4,388,532
Maintenance	498,667
Property Tax Expense	392,960
Return on Investment	4,085,866
TEP Owned	9,366,025
Total Purchased Renewable Energy	47,368,944
Customer Sited DG	
Consumer Education and Outreach	100,000
Meter Reading	35,363
Production Based Incentive Payment	7,192,720
Total Customer Sited DG	7,328,083
Technical Training	85,000
Information Systems	75,000
Metering	697,975
Labor & Administration	
Internal Labor	556,944
External Labor	216,903
Materials, Fees & Supplies	60,000
AZ Solar Website	4,000
Total Labor & Administration	837,847
Research & Development	253,000
Total Expenses	56,645,849
Net Revenue	$ -

RES Revenue Expenses

Tucson Electric Power
Net Revenue (Expenses)
January through December 2016

		Jan - Dec 16
Revenue		
Tariff Billing	$	42,573,368
Liquidated Damages		28,000
Total Revenue		42,601,368
Expenses		
Purchased Renewable Energy		
AMCCCG		33,370,997
Other Purchased Power		156,388
TEP Owned		
Property Taxes		180,989
Depreciation		4,544,300
Maintenance		497,502
Return on Investment		3,037,695
Total TEP Owned		8,260,485
Total Purchased Renewable Energy		41,787,870
Customer Sited DG		
Consumer Education and Outreach		99,435
Production Based Incentive Payment		7,517,552
Total Customer Sited DG		7,616,987
Technical Training		98,379
Information Systems		74,881
Metering		743,029
Labor & Administration		
Internal Labor		523,928
External Labor		271,904
Materials, Fees & Supplies		59,189
AZ Solar Website		3,053
Total Labor & Administration		858,074
Research & Development		252,500
Total Expenses		51,431,720
TOTAL NET REVENUE (EXPENSES)	**$**	**(8,830,353)**
Carry forward from Prior Year		8,809,321
Carry forward to 2018	**$**	**(21,032)**

Below is a description of the budget variances that were realized between the 2016 ACC approved budget, shown on page 9, and the RES program actual expenses, shown on page 10.

The total Expenses in 2016 of $51,431,720 exceeded the Revenue of $42,601,368 by $8,830,353. After applying the Carry forward from 2014 of $8,809,321 this leaves a balance of $(21,032) of Net Expenses to carry forward to TEP's 2018 Implementation Plan.

Due to the approval delay of TEP's 2016 Implementation Plan until May of 2016, the following budget line items were impacted:

- **Tariff Revenue**
  - With a delay in new rates and new tariff caps, there was a loss in tariff revenue of $5.1 million.
  - There was approximately $150,000 of losses due to fewer retail sales than were forecasted for 2016.

- **Above Market Cost of Comparable Conventional Generation ("AMCCCG")**
  - The 2016 Market Cost of Comparable Conventional Generation ("MCCCG") value could not be applied to the Purchased Power Fuel Adjustor Clause ("PPFAC") until the new rates were approved. This created a $3.7M decrease of RES dollars applied to the PPA payments, instead of increasing the PPFAC payments by the same amount.
  - The remaining $900,000 is attributed to production from PPAs being less than forecasted.

TEP Owned: Under budget by $ 1.1 million for the following reasons.

- Due to the delays in Ft. Huachuca Phase II, TEP was not able to realize the authorized return on investment, and depreciation for the original time period anticipated.
- This project qualified for FERC-required accruals for Allowance for Funds Used During Construction ("AFUDC") in lieu of a return on investment on construction expenditures collected through the REST in 2016. The accrued AFUDC will be recovered over the useful life of the project through depreciation expense.

External Labor:

- Exceeded budget due to a greater than anticipated number of proceedings with the ACC on the 2016 REST Implementation Plan, and the TEP General Rate Case, as well as the Commission's Value of Distributed Generation docket.

Performance-Based Incentives:

- The Company requested a lower PBI budget to account for the over-collection of payments in prior years due to delays in projects being completed.

TEP-Owned Residential Solar Discussion

In the Company's 2015 REST Implementation Plan, the ACC approved the TEP-Owned Residential Solar ("TORS") Program. Per Commission order (Decision No. 74884) the overall program costs are capped at $10 million and TEP has limited the size of the Program to a maximum of 600 residential customers. In the Company's 2016 REST Implementation Plan, the ACC did not approve a request by the Company to continue and expand the program (Decision No. 75815). As discussed in the Company's *Compliance Report and Renewable Energy Data for 2015* filed in ACC Docket E-00000R-16-0084 on April 1st, 2016, the Company began publically accepting applications for the TORS program on July 1st, 2015, with the corresponding installations occurring soon after. TORS applications and solar photovoltaic ("PV") installations continued throughout 2016. The Company is currently in the process of bringing the TORS Program to an end within the constraints approved by the Commission. The following discussion provides an overview of how the program has reached the conclusion of its subscription and deployment in greater detail.

Applications, Contracts and Installations

Customer Applications: The Company initially controlled the opportunity for customers to apply by limiting it to specific application periods of 200 applications each. The TORS application process transitioned to allowing customers to apply online at any time on June 15th, 2016. In order to bring the program to an end, the Company stopped accepting applications for the TORS program on December 1st, 2016. This date was selected in order to allow for approved customers to schedule and receive a site visit and have the opportunity to sign the contract in 2016. In total, the TORS program processed 1,627 applications.

Executed Contracts: With a few exceptions, the Company processed and executed customer contracts by the end of 2016. In total, the TORS program executed 481 contracts, for a cumulative capacity of 2.69 MW. Due to extenuating circumstances of both customers and installers, the Company allowed for nine customer contracts to be executed in 2017.

Commissioned Installations: The Company has continued to rely on the three local solar installation partners, originally selected in late 2014, during the program's implementation. The Company plans to have the remaining installations completed by the end of April 2017.

Budget and Inventory

Program Budget: The budget for the TORS program consists primarily of two main expense types: material and labor. The vast majority of the TORS material expense is attributed to PV modules and grid-tied inverters that were purchased in 2015 and allocated to the installers on a per-project basis. The labor expense is comprised of payments made to the solar installation partners as they complete and commission PV systems. In total, it is expected that TEP will conclude the TORS program having spent $6.79 million of the approved $10.0 million budget. This total expense is split nearly equally between materials and labor, resulting in an installed cost of $2.26/watt.

Remaining Inventory: The Company will conclude the TORS program with PV modules and grid-tied inverters remaining in inventory. The Company will look for opportunities to utilize the remaining inventory in future PV installations, while keeping a reserve amount of inventory for use as spares to the TORS equipment deployed.

Research and Development: The Company continues to scope and develop grid modernization research project proposals that include the TORS fleet. These pursuits will be aimed at exploring the utilization of TORS grid-tied inverters to improve distribution-level efficiency and reliability in coordination with other infrastructure and operations. The Company will be partnering with top-tier industry representatives from manufacturing and national labs to inform and validate the projects. The Company expects to have technical reports outlining research objectives and results available in early 2018.